

VALIDATION & VERIFICATION REPORT

American Carbon Registry

ACR386

Bluesource - Hudson Farm Improved Forest Management Project

Reporting Period:

30 June 2017 to 29 June 2018

Prepared for:

Bluesource

3 April 2019



AMERICAN CARBON REGISTRY



ISO 14065 Greenhouse Gas
Validation and Verification Body
#0821

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Project Title	Bluesource - Hudson Farm Improved Forest Management Project
Client	Bluesource
Project Location	Northwestern New Jersey
Reporting Period	30 June 2017 to 29 June 2018
Prepared by	SCS Global Services (SCS)
Date of Issue	3 April 2019
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Summary

SCS Global Services (SCS) has performed the validation and verification of the Bluesource - Hudson Farm Improved Forest Management Project (“the Project”) developed by Bluesource (“the Project Proponent”). This assessment covers the Project’s greenhouse gas emission reductions reported to the American Carbon Registry (the Registry or ACR) for the reporting period 30 June 2017 to 29 June 2018. This report presents the validation and verification process, the findings raised during the assessment, and the conclusion reached by SCS.

This validation and verification was undertaken to evaluate the representations provided in the project plan and monitoring report and assess whether the compiled data conforms to the assessment criteria. The evaluation was undertaken using the ACR Standard, Version 5.1 (July 2018), Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3 (April 2018), and the ACR Validation and Verification Guidelines, Version 1.1 (May 2018).

In the course of this assessment the SCS verifiers developed findings which included New Information Requests (NIRs), Non-Conformity Reports (NCRs) and Observations (OBSs). During this verification 19 findings were issued: 12 NCRs, 5 NIRs, and 0 OBSs. These findings are described in Appendix C. All NCRs and NIRs have been adequately responded to, resulting in their closure. OBSs are potential non-conformances that have been memorialized for future verifications.

SCS verified the adequacy of the information provided in the project plan and monitoring report, confirming that these documents meet the requirements of the assessment criteria. On the basis of the information made available to SCS and the analyses completed, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the claimed emission reductions and removals presented by Bluesource meets the requirements of ACR. Thus, SCS has verified 39,438 metric tons of CO₂e reductions and removals from the Bluesource – Hudson Farm Improved Forest Management Project for the reporting period of 30 June 2017 to 29 June 2018.

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1 Introduction

SCS Global Services (SCS) is a global leader in third-party certification, auditing, testing services, and standards. Established as an independent third-party certification firm in 1984, our goal is to recognize the highest levels of performance in environmental protection and social responsibility in the private and public sectors, and to stimulate continuous improvement in sustainable development. In 2012, Scientific Certification Systems, Inc. began doing business as SCS Global Services, communicating its global position with offices and representatives in over 20 countries. SCS is currently accredited to ISO 14065 for GHG Validation and Verification by the American National Standards Institute (ANSI) and offers carbon offset project validation and verification under the Verified Carbon Standard (VCS) and the American Carbon Registry (ACR). SCS also offers carbon offset verification under the Climate Action Reserve (CAR) and the Climate, Community and Biodiversity (CCB) standards.

SCS was commissioned by Bluesource to undertake the initial project validation and verification of the Hudson Farm Improved Forest Management Project. The project is located on 3,174 acres of forest land with mixed hardwoods, oak-hickory, northern conifer, and northern hardwoods. The property includes a diverse mix of forest community types that also includes lowland woodland wetlands, semi-open woodland brush, swampland, and early successional forests. It is currently one of the larger privately-owned forestlands in the state of New Jersey. Much of the mixed hardwoods and northern hardwoods throughout the property fall in areas that were historically farmed. This report covers the verification period of 30 June 2017 to 29 June 2018 as a project deliverable into the American Carbon Registry.

1.1 Project Description

The forest is largely used for recreational value. The property is leased by the Hudson Farm Club, which is a premium private year-round outdoor experience that mostly revolves around hunting and shooting activities. The management objectives include improving the quality, health, and vigor of the woodlands with an emphasis on wildlife habitat quality. This includes reducing stocking levels in highly stocked areas and controlling understory and mid-story species especially when dealing with exotic/invasive species. Overall, the owner will work to ensure that recreation and aesthetics are taken into account during habitat and forest activities. The management on site is designed to enhance the recreational and aesthetic values of the property with improvement in forest species diversity and structure. Along with that, an effort to enhance the watershed value is part of the management scheme.

The owner is very interested in the conservation and development of a suite of different habitat types throughout the property. Due to the recreational value of the forest, habitat for deer, black bear, and upland game bird habitat is preferred. Young forest stands are encouraged for more rare and threatened species. Forest creation projects should occur over the length of the project on small scales that include thinning the understory in areas of oak dominance to encourage and perpetuate oak dominance. Development of advanced regeneration is the goal of these thinning. Early successional habitat creation will occur in areas with mortality from gypsy moth.

The Hudson Farm Club will achieve GHG reductions through its commitment to maintaining its forest's CO₂ stocks above the locally observed industrial management levels. This will be achieved by implementing significantly lower harvesting levels, at both the per-acre level (such as implementing thinning and crop tree harvests instead of clearcutting) and the total project annual harvest levels. With this commitment, the forest's carbon sequestration will provide climate benefits. Hudson Farm Club's management actions will allow the timberlands to mature naturally; including non-commercial timber stand improvements and light commercial harvesting focused on improving forest health.

1.2 Audit Team

The SCS audit team consisted of the following individuals:

Lead Verifier and Cruiser: James Cwiklik, SCS Global Services, Verification Forester

Mr. Cwiklik holds a Masters of Forestry from Michigan Technological University. He completed his undergraduate work at the University of Pittsburgh, receiving a B.A. in Environmental Studies, with a minor in Religious Studies and a certificate in Geographic Information Systems. Previously he has been a Lead Consulting Forester with Davey Tree's Resource Division supervising a team of foresters for Pacific Gas and Electric's (PG&E) Community Pipeline Safety Initiative (CPSI) project. Mr. Cwiklik is a certified Arborist and has contributed to the efforts of eradicating the Asian long horned beetle in southwestern Ohio as an Inventory Arborist and Quality Control Specialist. He has also worked with the Michigan Department of Natural Resources as a Forest Technician Crew Leader to lead forest inventories across northern Michigan with an emphasis on the spread of emerald ash borer and beech bark disease. Since joining SCS in February 2018, he has conducted multiple site visits under different standards to assist with data collection, analysis, and field training.

Verifier: Michael Hoe, SCS Global Services, Verification Forester

Mr. Hoe has a M.S. in Sustainable Forest Management, with a minor in Forest Biometrics, from Oregon State University, where he also received his B.S. As a Graduate Research Assistant for OSU he organized a field crew and measurement protocol to obtain high quality field data. Previously he served as a Forester with Mason, Bruce, & Girard Inc., assisting with project management, quality control, and timber cruising in the Pacific Northwest and California. Mr. Hoe has also conducted research with the Bureau of Land Management, obtaining data on tree growth and damage through extensive field work. In addition, he has taught Forest Mensuration and plans to publish two papers on quantifying post-fire basal area mortality with multi-temporal LiDAR. Mr. Hoe is a lead verifier with SCS and has conducted several forestry verifications. During his time with SCS, he has proven to be a well-rounded carbon auditor, possessing a full gamut of technical expertise ranging from forest biometrics, growth and yielding modeling, and timber cruising. Mr. Hoe is based in Eugene, Oregon.

Independent Reviewer: Francis Eaton, SCS Global Services, Verification Forester

Francis Eaton holds a Masters of Forest Science from the Yale School of Forestry and Environmental Studies and received his B.S. in Forestry from Northern Arizona University. The focus throughout his studies was forest management with emphases on sampling design and statistical analysis. His studies in the Southwest United States were concentrated in ecological restoration, range management, and fire ecology. He spent three years working collecting field data and completing data analysis on forest restoration projects utilizing thinning treatments and prescribed fire with the Ecological Restoration

Institute. His work experience also includes complete biophysical inventories, estimation of timber volume, and wildfire risk assessments for two 3000 acre properties, as a forest consultant in northern New Mexico. Mr. Eaton has a long history of working with cattle and grazing lands and has spent over a decade working in the cattle production industry for the second largest cattle operation in the U.S. Mr. Eaton currently works as a verification forester for SCS and has experience auditing AFOLU projects under the Verified Carbon Standard (VCS) and Climate, Community, and Biodiversity Alliance (CCB) standards, as well as Improved Forest Management projects under the standards of the Climate Action Reserve (CAR), including seven projects in east Africa in Miombo, Mopane, Acacia, and Camiphora forest types. Finally, Mr. Eaton is an accredited as lead verifier, U.S Forest Offset and Urban Forest project specialist.

2 Assessment Details

2.1 Assessment Objectives

The objectives of validation are to evaluate:

- Conformance of the submitted Project Plan and Project Monitoring Report with the assessment criteria;
- GHG emissions reduction project planning information and documentation in accordance with the applicable methodology, including the project description, baseline, monitoring and reporting procedures, and quality assurance/quality control (QA/QC) procedures;
- Reported GHG baseline, *ex-ante* estimated project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

The objectives of verification are to evaluate:

- Reported GHG baseline, project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable);

2.2 Scope and Criteria

The scope of this assessment will be defined as the following:

- Assessment of the management systems, data handling and estimation methods used in calculating and reporting emissions data;
- Assessment of baseline methodology and determination;
- Assessment of and issuance of an opinion on issues of leakage and additionality;
- Assessment of data accuracy and any assumptions made in the manipulation of that data;
- Validation that the organization is operating according to the methodology approved by ACR;

- Determine whether the project could reasonably be expected to achieve the claimed GHG reduction/removals;
- Assessment of completeness of the inventory;
- Verification of emissions reductions and removals reported;
- Verification of the project boundaries and continuance;
- Verification that a measurement and monitoring system is in place that is capable of delivering high quality carbon stock data;
- Verification that the organization is operating according to the methodology approved by the ACR;
- Verification that the carbon stocks reported are real; and
- Conclusions developed on the declared tonnage for registration in ACR.
- The GHG sources, sinks and/or reservoirs that are applicable to the Project:
 - Baseline:
 - Above-ground biomass carbon
 - Below-ground biomass carbon
 - Standing dead wood
 - Harvested wood products
 - Project:
 - Above-ground biomass carbon
 - Below-ground biomass carbon
 - Standing dead wood
 - Harvested wood products
- The reporting period: 30 June 2017 to 29 June 2018

SCS conducted the verification assessment of the project and project documentation against the following criteria:

- American Carbon Registry Standard, Version 5.1 (July 2018)
- ACR Approved Methodology: Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3 (April 2018)
- ACR Validation and Verification Standard v1.1 (May 2018)

As an ANSI-accredited verification body, SCS conducted the verification to the requirements of:

- American Carbon Registry Validation and Verification Guidelines, Version 1.1
- ISO 14064-3: 2006, Greenhouse Gases – Part 3: Specification with guidance for the validation and verification of GHG assertions

2.3 Level of Assurance and Materiality

SCS performed the assessment activities to a **reasonable level** of assurance in accordance with the assessment criteria. Reasonable assurance is attained by examining a sufficient amount of information, through document review, site visits, and interviews with personnel involved in the execution of the Project. SCS applied a materiality threshold of $\pm 5\%$; meaning, the reported emissions were free of material misstatements, omissions, and errors achieving a minimum level of at least 95% accuracy, in accordance with ACR's materiality threshold.

3 Validation and Verification Process

3.1 Method and Criteria

SCS performed the validation and verification through a combination of document reviews, interviews with relevant personnel, and on-site inspections, as discussed in Section 3.3 through 3.6 of this report. At all times SCS assessed the Project's conformance to the criteria described in Section 2.2 of this report. As discussed in Section 3.6, the audit team issued findings to ensure that the project fully conformed to all requirements. The validation and verification activities included the following:

- Conflict of interest review and appointment of team;
- Kick-off meeting with Hudson Farm Club and Bluesource;
- Conducting a document review including the GHG Project Plan, and supporting data;
- Development of the verification and sampling plan;
- Site visits and execution of the sampling plan;
- Review and evaluation of raw data and emission reduction calculations;
- Follow-up of non-conformities and new information requests as needed; and
- Final statement and report development.

3.2 Assessment Summary

The validation and verification process consisted of the following:

1. **Project listed with the ACR:**
The Hudson Farm IFM Project is listed on the Registry website (13 August 2018). Bluesource selected SCS as their verification body.
2. **Conflict of Interest Review.**
The conflict of interest assessment was conducted by SCS to identify any potential conflicts for the audit team and the COI form was submitted to ACR. No conflicts were identified and a determination of low potential for conflict of interest was received from ACR on 13 August 2018 prior to the commencement of verification activities.

3. **Appointment of Audit Team**

This validation and verification was performed by James Cwiklik, SCS Lead Verifier, and reviewed by Francis Eaton, SCS Internal Reviewer. Michael Hoe supported the Lead Verifier during verification services. James Cwiklik, Michael Hoe, and Francis Eaton are lead verifiers approved by SCS.

4. **Project Kick-Off Meeting**

A kick-off meeting was conducted between the verification team, Cakey Worthington, and Carlos Silva on 4 September 2018. The purpose of the meeting was to review the scope of validation/verification criteria; review the logistics of the site visit; review the timeline of the audit; discuss any changes in the project related to the site, sources, GHG management systems; and to begin the information gathering process.

5. **Desk Review**

SCS received and reviewed the project plan and supporting documentation. A risk assessment was conducted to identify key factors that impact the reported emission reductions and removals. An Audit Plan was designed to review all project elements in areas of high risk of inaccuracy or non-conformance.

6. **Site Visit**

A site visit was conducted by the audit team on 6 September 2018 to 8 September 2018. The purpose of the site visit is to verify the project equipment, location and eligibility; to review and evaluate the project GHG management systems, data collection and handling, and emission reduction calculations and procedures in place; to assess the qualifications of relevant personnel; and to finalize the risk assessment and sampling plan.

7. **Quantitative Review**

An assessment of the emission reduction calculation inputs and procedures was performed to review the quantitative analyses undertaken by Bluesource to convert the raw inventory data into emission reduction estimates.

8. **Findings**

Throughout the verification, there is an iterative exchange between SCS and Bluesource to gather additional information for review and examination. This exchange includes the issuance of Findings—New Information Requests (NIR), Non-Conformity Reports (NCR) and Observations (OBS) — by SCS. The Project Proponent must respond to NIRs and NCRs in order for SCS to render a verification opinion. At this time all Findings have been appropriately addressed by Bluesource and subsequently closed by SCS. See section 3.5 for more information.

9. **Draft Report and Statement**

This step in the verification process includes a final review of the submitted data, completion of the Verification Report, and drafting of the Verification Statement. A draft Verification Report and Statement are completed based on the results of the verification assessment.

10. Technical Review

The draft report was presented to an SCS lead verifier, independent of the verification, who determined the Verification Statement to be justified given the evidence presented. The Verification Report and Verification Statement were then presented to Bluesource for review and comment.

11. Final Report and Opinion

Once Bluesource approved these documents, SCS uploaded them to the Registry website for administrative review by ACR. Given a positive review, ACR will register the emissions reductions for the project and issue carbon tonnes for a reporting period of 30 June 2017 to 29 June 2018.

12. Exit meeting with client:

The exit meeting entails a review of the assessment process, summary of the verification findings, and to initiate scheduling for the next verification period.

3.3 Document Review

SCS conducted a document review to inform the planning process prior to validation and verification activities. SCS carefully reviewed the initial GHG Project Plan (the “Plan”) for conformance to the assessment criteria. The audit team also reviewed subsequent copies of the Plan as it was updated by Bluesource (the Project Proponent) in response to findings issued by the team throughout the validation and verification process. A list of other documentation reviewed by the audit team is provided in Appendix B.

The validation and verification process is a risk based assessment aimed at identifying key factors that impact the reported emission reductions and removals. As a result of the document review and correspondence with project personnel, an audit plan and a sampling plan were developed for this engagement. An audit agenda was submitted prior to the site visit. SCS assessed the GHG Project Plan with actual project conditions, reviewed the baseline and project scenarios, assessed the eligibility, additionality, GHG emission reduction assertion and the underlying monitoring data to determine if either contained material or immaterial misstatements. The results of these reviews are discussed in greater detail below.

3.4 Interviews

Interviews constituted an important component of the audit process to help the audit team better understand the dynamics of the Project, the activities implemented in the Project, and how the reductions were real and accurate. The audit team interviewed the following personnel associated with the project proponent and any implementing partners. The phrase “Throughout audit” under “Date Interviewed” indicates that the individual in question was interviewed on multiple occasions throughout the audit process.

Individual	Affiliation	Date Interviewed
Cakey Worthington	Bluesource, LLC	Throughout the audit
Steve Kallesser	Gracie & Harrigan Consultants	6 September 2018 to 7 September 2018 (site visit)
Carlos Silva	Bluesource, LLC	Throughout the audit
John Ursin	Hudson Farm Club, LLC	6 September 2018 to 7 September 2018 (site visit)

3.5 Site Inspections

The objectives of the performed on-site inspection were to:

- Confirm the validity of the statements made in the Plan and associated project documentation;
- Interview project personnel to determine if the Plan correctly identifies project activity and assess project personnel competencies;
- Select samples of data from on-the-ground measurements for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the Project; and
- Perform a risk-based review of the project area to ensure that the Project is in conformance with the eligibility requirements of the validation/verification criteria.

In fulfilment of the above objectives, the audit team conducted an on-site inspection on 6 September 2018. The audit team performed an in-depth assessment of the conformance of the Project to the assessment criteria. The inspection included the review of records and discussing the project activities at Hudson Farm Club. While touring the project area, the audit team visually observed posted boundary signs, old fence lines, and “Commercial Shooting Preserve” for reference/boundary trees.

3.6 Resolution of Any Material Discrepancy

The Project Proponent and audit team resolved any potential or actual material discrepancies identified during the assessment process through the issuance of findings. SCS characterizes the types of findings it issued as follows:

Non-Conformity Report (NCR): An NCR signified a material discrepancy with respect to a specific requirement. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a positive statement.

New Information Request (NIR): An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. Receipt of an

NIR did not necessarily indicate that the Project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a positive statement.

Observation (OBS): An OBS indicated an area that should be monitored or ideally, improved upon. OBSs were considered to be an indication of something that could become a non-conformity if not given proper attention, and were sometimes issued in the case that a non-material discrepancy was identified. OBSs were considered to be closed upon issuance.

All NCRs and NIRs issued by the audit team during the assessment process have been closed. Appendix C lists all findings issued during the validation and verification process.

4 Validation and Verification Assessment

4.1 Project Design

4.1.1 Project Proponent

As indicated within the ACR GHG Project Plan Eligibility Screening form, the Project Proponent is Bluesource. The Plan indicates that the ACR account holder is Bluesource, which SCS confirmed by reviewing the ACR website.

4.1.2 Project Title

The GHG Plan notes the Project title as the *“Bluesource – Hudson Farm Improved Forest Management Project”*.

4.1.3 Project Type

The GHG Plan notes the Project type as Improved Forest Management. The Project follows the approved ACR methodology: Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3 (2018), as stated in the GHG Plan.

4.1.4 Location

The GHG Plan indicates the Project site as 3,174 acres of forested land in northwestern New Jersey. The address of the property is 270 Stanhope Sparta Road, Andover, NJ 07821. SCS confirmed the Project Location during the site visit by sampling plots, observing physical boundaries and landmarks, and assessing the Project Area via aerial imagery using GIS software. This meets the requirement that the Project be located in the United States.

4.1.5 Project Summary and Action

SCS confirmed the GHG Plan included a brief summary of the Project including the Project action. This project is a conglomerate of several adjacent or nearby parcels. It is currently the largest privately-owned forestland in the state. The Hudson Farm Club seeks to earn profit through recreation opportunities and conservation activities. Few recreation and wildlife conservation opportunities exist on this scale in the region. The forest management practices focus on sustainable, natural forest growth and maintenance harvest for essential activities and forest health. The project aims to ensure long-term sustainable management of the forests.

Over 1000 acres of the project currently hold a Deed of Conservation Easement. These help to ensure their conservation and recreational aims while also protecting water quality, scenic vistas, wildlife habitat, and unique ecosystems. Reading into the management plans provided sheds light on the practices that aim to maintain forest health and structural diversity at the stand level while encouraging ecosystem and wildlife habitat diversity at the project level. Additionally, the proposed project activities will lead to significant increases in the carbon storage and conservation value relative to typical private sector industrial management in the region, which focuses on short rotation clear-cuts. This project ensures conservative/sustainable management of the forests, which otherwise under existing state and regional timber harvest regulations, could undergo intensive industrial harvesting.

During the site visit, the auditor observed the trail system, posted boundary signs, old fence lines, “Commercial Shooting Preserve” signs for reference/boundary trees, and management system in place for the Project activities. SCS confirmed the project consisted of conservation activities with an emphasis on providing improved habitat for wildlife. The Hudson Farm Club emphasizes ecological sustainability and their objective is to improve hunting on site as well as protect valuable habitat while performing restorative treatments within the Project Area.

4.1.6 Ex Ante Offset Projection

The Project Proponent provided ex-ante estimations of the baseline emissions avoided per each vintage of emission reductions, which SCS verified in its evaluation of data and calculations. See Section 4.3 below.

4.1.7 Scope

The Project is an Improved Forest Management project, as defined by ACR, within the Land Use Change and Forestry sector as defined by the methodology: Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3 (April 2018). The Project complies fully with the criteria as set out in Section A.1 of the methodology.

4.1.8 Parties

SCS confirmed the GHG Project Plan contained the necessary list of parties and details of those roles.

4.1.9 Project Boundary

The Plan contains a description of the physical boundary, which is located in Sussex county, New Jersey. This is the physical and geographic site where project activities occur. The audit team confirmed that this boundary was well documented throughout both the document review and site visit activities.

The GHG sources, sinks, and reservoirs associated with the baseline and project scenario are shown in the section 2 above.

The sources, sinks, and reservoirs of GHG emissions within the project boundary are listed in the table below. This is the case for both the baseline and project scenarios.

4.2 Project Applicability & Eligibility

The ACR methodology provides a series of requirements for scope and applicability in Section A.2, in addition to the latest ACR program eligibility requirements as found in the ACR Standard. SCS confirmed that the GHG Project Plan indicates how each applicability condition is met including supplemental requirements stipulated by ACR.

Description	Included / Excluded	Gas	Justification
Above-ground biomass carbon	Included		Major carbon pool subjected to the project activity.
Below-ground biomass carbon	Included		Major carbon pool subjected to the project activity.
Standing dead wood	Included		Major carbon pool in unmanaged stands subjected to the project activity. Project Proponents may elect to include the pool in managed stands. Where included, the pool must be estimated in both the baseline and with project cases. For this Project, standing dead wood will be included in all stands.
Harvested wood product	Included		Major carbon pool subjected to the project activity
Burning of biomass	Included	CH ₄	Non-CO ₂ gas emitted from biomass burning

Applicability Conditions

During the document review and site visit, SCS confirmed that the project scenario consists of maintaining above baseline CO₂ stocks through carbon sequestration. The project scenario revolved around natural forest growth with no commercial harvesting. If any harvesting takes place, the scale will be small and the

parcel will have a certification under the New Jersey Tree Farm System. The Project Scenario is a conservation management regime designed to maximize carbon sequestration and other co-benefits (e.g., water quality protection and wildlife habitat).

The project is located in Sussex County, New Jersey and therefore meets the criteria requirement. SCS confirmed the location during the document review and site visit.

The project proponent successfully established that the Project Area lies on private land, does not have commercial harvesting taking place, is run by the Hudson Farm Club, LLC, and demonstrated that they maintain ownership of timber rights as of the project State Date.

4.2.1 Project Start Date

In accordance with Chapter 3 of the ACR Standard, the start date is defined as the date at which the project began to reduce GHG emissions against its baseline. SCS reviewed the GHG plan to confirm that the Project Activities for this Reporting Period began when the inventory was conducted. The inventory was conducted 1-3 months after the project start date and taken into account during quantification. They worked with a local forester to determine the fraction of annual growth that had occurred between the project start date and the inventory date and multiplied annual growth for each tree by that fraction. SCS concluded that these documents supported the project start date listed in the Registry website, and the Project therefore meets the start date eligibility criteria of the ACR Standard.

4.2.2 Minimum Project Term

The minimum term is forty years. SCS confirmed the Project Proponent provided a timeline with a project term of 40 years, with annual monitoring, reporting and verification in the GHG Plan.

4.2.3 Crediting and Reporting Period

In ACR, the eligible crediting period for this type of project is listed as 20 years. SCS has confirmed the crediting period of 20 years, 30 June 2017 to 29 June 2037, was indicated in section H2 of the GHG plan. SCS has concluded that the reporting period verified in this report is within the applicable crediting period of the Project.

4.2.4 Offset Title

The property is a conglomerate of parcels owned by one person (Peter Kellogg) under different company names (IAT Reinsurance Syndicate, Inc., Cardia Company, and E.G. Anderson, Inc.). Kellogg is the sole owner of the GHG offsets generated during the course of the Project activities. Kellogg has provided documentation of undisputed title to all offsets that are clear, unique, and uncontested. Kellogg was confirmed as the Project Proponent. Bluesource, LLC was responsible for calculating the Project's emission reductions, developing the GHG Project Plan, and listing the Project with ACR. Ownership was confirmed through review of the Deed of Conservation Easement as well as review of the physical property boundary on site, Sussex County tax parcel information, and independently obtained GIS layer of ownership parcels.

SCS confirmed Kellogg retains full, legal, and beneficial title to the carbon offset credits being issued as a result of reductions in emissions from the Bluesource - Hudson Farm Improved Forest Management Project.

4.2.5 Additionality

The audit team assessed the GHG Project Plan and supporting evidence to determine whether the Project sufficiently passed the approved performance standard, as defined in the applicable methodology, and a regulatory additionality test. The audit team determined that the Project's additionality was demonstrated in accordance with the requirements of the ACR Standard and ACR methodology. The specific evidence provided by the Project Proponent and the validation activities that the audit team performed are described in the sections below.

Regulatory Surplus

The Project Proponent must ensure that emission reductions achieved by the project activities would not have occurred in the baseline case due to federal, state, or local regulations. A regulatory review of the Project was conducted by the audit team. The results of the regulatory review indicated the Project is in compliance with Federal, State and Local regulations. There are no laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions, or other legally binding mandates requiring the project activities. SCS reviewed the New Jersey Forestry and Wetlands Best Management Practices (BMPs) Manual and found no requirements that the project activities must take place.

SCS reviewed the Attestation of Regulatory Compliance submitted by John Ursin dated 2 July 2018 ("HudsonFarm_Regulatory_Compliance_Attestation_6_27_2018_signed.pdf"), affirming the Project's compliance status throughout the reporting period. During the site visit and desk review activities, SCS was able to confirm to a reasonable level of assurance that the Project is in compliance with local, state and Federal regulations and had no material regulatory non-conformance events. SCS reviewed the New Jersey State Forest Practice Rules and BMPs, EPA Enforcement & Compliance History Online database (ECHO), and the Occupational Safety and Health Administration (OSHA) for the current Reporting Period and found no evidence of non-compliance.

Lastly, SCS also confirmed the Project's monitoring plan indicated that the Project was in compliance with Federal, State and Local regulations based on this review, SCS concludes the Project met the Regulatory Compliance requirements of the assessment criteria.

Based on its review, SCS determined that the Project Proponent provided clear evidence in the GHG Project Plan that the GHG reduction activity is not required by any applicable and enforced federal, state, or local laws, regulations, ordinances, consent decrees, or other legal arrangements besides as noted above.

Common Practice Test

The Bluesource – Hudson Farm Improved Forest Management Project showed that widespread similarities exist with the project and industrial forestland. The location and size of the project would promote heavier cutting practices and the project could feasibly resemble that of industrial forestland ownership in the area.

Performance Standard

The Bluesource – Hudson Farm Improved Forest Management Project uses the three-pronged approach; therefore, this step is not required.

4.2.6 Regulatory Compliance

Projects must maintain material regulatory compliance. In order to maintain material regulatory compliance, a project must complete all regulatory requirements at required intervals. During the site visit and desk review activities, SCS was able to confirm to a reasonable level of assurance that the Project is in compliance with local, state, and federal regulations and had no material regulatory non-conformance events. SCS reviewed the EPA Enforcement and Compliance Online History database and found no violations in respect to Clean Air Act or RCRA compliance. In addition, SCS reviewed the Occupational Safety and Health Administration Website and confirmed no issues of non-compliance or violation. Lastly SCS reviewed the Attestation of Regulatory Compliance submitted by John Ursin dated 2 July 2018 (“HudsonFarm_Regulatory_Compliance_Attestation_6_27_2018_signed.pdf”), affirming the Project’s compliance status throughout the reporting period. SCS also confirmed the Project’s monitoring plan indicated that the Project was in compliance with Federal, State and Local regulations based on this review, SCS concludes the Project met the Regulatory Compliance requirements of the assessment criteria.

4.2.7 Permanence

Section B8 of the GHG Plan asserts that the total risk percentage is 18% based on a risk assessment using the ACR Tool for Risk Analysis and Buffer Determination as required by the ACR methodology. SCS confirmed the above via independent re-quantification of the risk value.

4.2.8 Leakage

Section E3 of the GHG Plan states:

“All actively harvesting forestlands in the project area have been certified by Tree Farm. To prevent activity-shifting leakage, IAT Reinsurance will not conduct harvests on other lands under its ownership that would offset the harvest reductions attributable to the project. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%.”

“Quantification of leakage is limited to market leakage, as no activity-shifting leakage is allowed by the methodology beyond de minimis levels. In New Jersey, Tree Farm certifications are allocated by parcel. All forested parcels owned by Hudson Farm that have or will harvest in the project are Tree Farm certified and included in the carbon project, therefore there is no activity-shifting leakage.”

Section 3 of the Monitoring Plan states:

“Market leakage was determined by quantifying the merchantable carbon removed in both the baseline and with-project cases. Carbon in long-term storage in in-use wood products and landfills, was used to assess relative amounts of “total wood products produced” in the two scenarios. The decrease in wood production relative to the baseline was then calculated and the applicable market leakage discount factor was determined.”

SCS confirmed the above via confirmation of total harvested wood products stored for 100 years within the Baseline and Project Scenario against the requirements in Sections D6 and D7 of the ACR methodology.

4.2.9 Independently Validated and Verified

SCS Global Services is a third-party validation and verification body approved by ACR and therefore meets this requirement.

4.2.10 Community and Environmental Impacts

SCS confirmed that the GHG Plan included an assessment of the potential community and environmental impacts due to the Project. There are no negative impacts identified and therefore no mitigation plan is necessary. The audit team agrees with the assertion by the Project Proponent that any community or environmental impacts associated with this Project would be net positive due to the focused project boundary and reduction of emissions.

4.3 Evaluation of Data and Calculations

Ownership	Annual Discount Rate
Private Industrial	6%
Private Non-Industrial	5%
Tribal	5%
Non-governmental organization	4%
Non-federal public lands	4%

4.3.1 Baseline Scenario

The methodology defines the baseline scenario as “project-specific and must describe the harvesting scenario that would maximize NPV of perpetual wood products harvests...” The discount rate assumptions for calculating NPV vary by ownership class (see table below). Given that the Bluesource – Hudson Farm IFM Project is Private Industrial timberland, a 6% discount rate was used, as required.

The GHG Plan continues to state:

“The ACR protocol defines the baseline as the mix of harvest prescriptions that maximizes the net present value (NPV) of timber revenues over a 100-year period. We determined this mix by projecting 100-year timber revenues across a range of common harvest practices in the region (Table E1.e). We consulted with Steve Kalleser, a local forester, to identify these harvest practices.”

“Our consultations with local forester, Steve Kalleser, indicated that variable harvest costs of 18% of total revenue are typical for the region. We subtracted these costs from timber revenues prior to computing the net present value of 100-yr baseline cash flows.

We computed NPV using a 6% discount rate, the rate specified for private, non-industrial in the ACR protocol.”

The equations used to calculate the baseline emissions are the following (equation numbers correspond to the ACR methodology):

$$\Delta C_{BSL,TREE,t} = (C_{BSL,TREE,t} - C_{BSL,TREE,t-1}) \quad (1)$$

Where:

t: Time in years.

$\Delta C_{BSL,TREE,t}$: Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$C_{BSL,TREE,t}$: Baseline value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$\Delta C_{BSL,DEAD,t} = (C_{BSL,DEAD,t} - C_{BSL,DEAD,t-1}) \quad (2)$$

Where:

t: Time in years.

$\Delta C_{BSL,DEAD,t}$: Change in the baseline carbon stock stored in dead wood (in metric tons CO₂) for year t.

$C_{BSL,DEAD,t}$: Baseline value of carbon stored in dead wood at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$\bar{C}_{BSL,HWP} = \frac{\sum_{t=1}^{20} C_{BSL,HWP,t}}{20} \quad (3)$$

Where:

t: Time in years.

$\bar{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).

$C_{BSL,HWP,t}$: Baseline value of carbon remaining in wood products 100 years after being harvested in the year t (in metric tons of CO₂).

$$\overline{GHG}_{BSL} = \frac{\sum_{t=1}^{20} (BS_{BSL,t} * ER_{CH_4} * \frac{16}{44} * GWP_{CH_4})}{20} \quad (4)$$

Where:

t: Time in years.

\overline{GHG}_{BSL} : Twenty-year average value of greenhouse gas emissions (in metric tons of CO₂) resulting from the implementation of the baseline.

$BS_{BSL,t}$: Carbon stock (in metric tons CO₂) in logging slash burned in the baseline in year t.

ER_{CH_4} : Methane (CH₄) emission ratio (ratio of CO₂ as CH₄ to CO₂ burned). If local data on combustion efficiency is not available or if combustion efficiency cannot be estimated from fuel information, use IPCC default value¹⁷ of 0.012

16/44: Molar mass ratio of CH₄ to CO₂.

GWP_{CH_4} : 100-year global warming potential (in CO₂ per CH₄) for CH₄ (IPCC SAR-100 value of 21 per the Fourth Assessment Report)

$$C_{BSL,AVE} = \frac{\sum_{t=0}^{20} (C_{BSL,Tree,t} + C_{BSL,DEAD,t})}{20} + \bar{C}_{BSL,HWP} \quad (5)$$

Where:

t: Time in years.

$C_{BSL,AVE}$: 20-year average baseline carbon stock (in metric tons CO₂).

$C_{BSL,Tree,t}$: Baseline value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO₂).

$C_{BSL,DEAD,t}$: Baseline value of carbon stored in dead wood at the beginning of the year t (in metric tons CO₂).

$\bar{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).

$$\Delta C_{BSL,t} = \Delta C_{BSL,TREE,t} + \Delta C_{BSL,DEAD,t} + \bar{C}_{BSL,HWP} - \overline{GHG}_{BSL} \quad (6)$$

Where:

t: Time in years.

$\Delta C_{BSL,t}$: Change in the baseline carbon stock (in metric tons CO₂) for year t.

$\Delta C_{BSL,Tree,t}$: Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$\Delta C_{BSL,DEAD,t}$: Change in the baseline carbon stock stored in dead wood (in metric tons CO₂) for year t.

- $\bar{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).
- \overline{GHG}_{BSL} : Twenty-year average value of greenhouse gas emissions (in metric tons of CO₂) resulting from the implementation of the baseline.

If years elapsed since the start of the IFM project activity (t) is $\geq T$ to compute long-term average stock change use:

$$\Delta C_{BSL,t} = 0 \quad (7)$$

$$UNC_{BSL} = \frac{\sqrt{(C_{BSL,TREE,1} * \epsilon_{BSL,TREE})^2 + (C_{BSL,DEAD,1} * \epsilon_{BSL,DEAD})^2 + (\bar{C}_{BSL,HWP} * \epsilon_{BSL,TREE})^2 + (\overline{GHG}_{BSL} * \epsilon_{BSL,TREE})^2}}{C_{BSL,TREE,1} + C_{BSL,DEAD,1} + \bar{C}_{BSL,HWP} + \overline{GHG}_{BSL}} \quad (10)$$

Where:

- UNC_{BSL} : Percentage uncertainty in the combined carbon stocks in the baseline.
- $C_{BSL,TREE,t}$: Carbon stock in the baseline stored in above and below ground live trees (in metric tons CO₂) in year t.
- $C_{BSL,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.
- $\bar{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).
- \overline{GHG}_{BSL} : Twenty-year average value of greenhouse gas emissions (in metric tons of CO₂) resulting from the implementation of the baseline.
- $\epsilon_{BSL,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the initial inventory in year 1.
- $\epsilon_{BSL,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the initial inventory in year 1.

All of the data used for the baseline calculations above was made available to the audit team, and SCS confirmed the numbers by review of:

- HudsonFarm_GHG_Plan_4_3_19.pdf
- HudsonFarm_100Yr_Calcs_2_6_18.xls
- HudsonFarm_RP_ERT_HWP_2_8_18.xls
- HudsonFarm_Start_RP_CO2_2_4_18.xls
- HudsonFarm_TimberPrices_12_4_18.xls
- HudsonFarm_START.accdb
- HudsonFarm_CC.out

The audit team reproduced the Project Proponent's calculations and verified their accuracy based on the underlying data.

SCS concludes that the GHG Project Plan sufficiently assessed the baseline scenario and that the scenario is relevant, complete, consistent, accurate, transparent, and conservative.

4.3.2 Quantification of Project Emissions

The project scenario consists of simulating the forestland with non-commercial harvesting maintaining carbon removals above the annual allowable cut. The project action will allow the forest to progress naturally with no commercial harvesting. Management decisions of the forest focus on sustainable, natural forest growth and maintenance harvests for essential activities and forest health. The project ensures long-term sustainable management of the forests.

Harvest scenarios were more limited in the project scenario, only GROW, SHW (shelterwood), and STS (single tree selection). No clearcut or diameter limit scenarios were used. The goal is conservation based.

The GHG Plan also states "All actively harvesting forestlands in the project area have been certified by Tree Farm. To prevent activity-shifting leakage, IAT Reinsurance will not conduct harvests on other lands under its ownership that would offset the harvest reductions attributable to the project. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%." As a result, project activity shifting leakage can be disregarded.

4.3.3 Quantification of Emissions Reductions

Emission reductions are calculated using the following equations.

$$\Delta C_{P,TREE,t} = (C_{P,TREE,t} - C_{P,TREE,t-1}) \quad (21)$$

Where:

t: Time in years.

$\Delta C_{P,TREE,t}$: Change in the project carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$C_{P,TREE,t}$: Project value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$\Delta C_{P,DEAD,t} = (C_{P,DEAD,t} - C_{P,DEAD,t-1}) \quad (12)$$

Where:

t: Time in years.

$\Delta C_{P,DEAD,t}$: Change in the Project carbon stock stored in dead wood (in metric tons CO₂) for year t.

$C_{P,DEAD,t}$: Project value of carbon stored in dead wood at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$GHG_{P,t} = BS_{P,t} * ER_{CH_4} * \frac{16}{44} * GWP_{CH_4} \quad (13)$$

Where:

t: Time in years.

$GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year (t).

$BS_{P,t}$: Carbon stock (in metric tons CO₂) in logging slash burned in the project in year t.

ER_{CH_4} : Methane (CH₄) emission ratio (ratio of CO₂ as CH₄ to CO₂ burned). If local data on combustion efficiency is not available or if combustion efficiency cannot be estimated from fuel information, use IPCC default value¹⁷ of 0.012

16/44: Molar mass ratio of CH₄ to CO₂.

GWP_{CH_4} : 100-year global warming potential (in CO₂ per CH₄) for CH₄ (IPCC SAR-100 value of 21 per the Fourth Assessment Report)

$$\Delta C_{P,t} = \Delta C_{P,TREE,t} + \Delta C_{P,DEAD,t} + C_{P,HWP} - GHG_{P,t} \quad (14)$$

Where:

t: Time in years.

$\Delta C_{P,t}$: Change in the project carbon stock and GHG emissions (in metric tons CO₂e) for year t.

$\Delta C_{P,TREE,t}$: Change in the project carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$\Delta C_{P,DEAD,t}$: Change in the project carbon stock stored in dead wood (in metric tons CO₂) for year t.

$C_{P,HWP}$: Carbon remaining stored in wood products 100 years after harvest (in metric tons CO₂) for the project in year t.

$GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year (t).

$$UNC_{P,t} = \frac{\sqrt{(C_{P,TREE,t} * \epsilon_{P,TREE})^2 + (C_{P,DEAD,t} * \epsilon_{P,DEAD})^2 + (C_{P,HWP,t} * \epsilon_{P,TREE})^2 + (GHG_{P,t} * \epsilon_{P,TREE})^2}}{C_{P,TREE,t} + C_{P,DEAD,t} + C_{P,HWP} + GHG_{P,t}} \quad (18)$$

Where:

$UNC_{P,t}$: Percentage uncertainty in the combined carbon stocks in the project in year t.

$C_{P,TREE,t}$: Carbon stock in the project stored in above and below ground live trees (in metric tons CO₂) in year t. $\Delta C_{BSL,TREE,t}$: Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$C_{P,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.

$C_{P,HWP,t}$: Annual carbon (in metric tons CO₂) remaining stored in wood products in the project 100 years after harvest in year t.

$GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the

implementation of the project in year t.

$\epsilon_{P,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

$\epsilon_{P,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

$$UNC_t = \frac{\sqrt{(\Delta C_{BSL,t} * UNC_{BSL})^2 + (\Delta C_{P,t} * UNC_{P,t})^2}}{\Delta C_{BSL,t} + \Delta C_{P,t}} \quad (19)$$

Where:

UNC_t : Total project uncertainty in year t, in %.

$\Delta C_{BSL,t}$: Change in the baseline carbon stock and GHG emissions (in metric tons CO₂) for year t.

UNC_{BSL} : Percentage uncertainty in the combined carbon stocks in the baseline.

$C_{P,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.

$C_{P,HWP,t}$: Annual carbon (in metric tons CO₂) remaining stored in wood products in the project 100 years after harvest in year t.

$GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year t.

$\epsilon_{P,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

$\epsilon_{P,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

If calculated UNC in equation (19) is <10%, then UNC shall be considered 0% in equation (20).

$$C_{ACR,t} = (\Delta C_{P,t} - \Delta C_{BSL,t}) * (1 - LK) * (1 - UNC_t) * (1 - BUF) \quad (20)$$

Where:

$C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.

$\Delta C_{P,t}$: Change in the project carbon stock and GHG emissions (in metric tons CO₂e) for year t.

$\Delta C_{BSL,t}$: Change in the baseline carbon stock (in metric tons CO₂) for year t.

LK: Leakage discount.

BUF: The non-permanence buffer deduction. BUF will be set to zero if an ACR approved insurance product is used.

UNC_t : Total Project Uncertainty, (in %) for year t. UNC_t will be set to zero if the project meets

ACR's precision requirement of within $\pm 10\%$ of the mean with 90% confidence. If the project does not meet this precision target, UNCT should be the half-width of the confidence interval of calculated net GHG emission reductions.

Any negative project stock change ($C_{ACR,t}$) values from time t will carry over to the following year through a balance of negative emission reduction tons ($C_{NEG,t}$) which is calculated using equation 21.

$$C_{NEG,t} = C_{NEG,t-x} + C_{ACR,t} \quad (21)$$

Where:

- $C_{NEG,t}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.
- $C_{NEG,t-x}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at the last valid verification report x years ago (time t-x).
- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.

If the value of $C_{NEG,t}$ is less than zero in any year prior to the end of the Crediting Period, ERT values are calculated using equation 22, otherwise equation 23 is used.

$$ERT_t = 0 \quad (22)$$

$$ERT_t = C_{NEG,t-x} + C_{ACR,t} \quad (23)$$

Where:

- ERT_t : Emission Reduction Tons issued with vintage year t.
- $C_{NEG,t-x}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at the last valid verification report x years ago (time t-x).
- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.

All of the data used for the project calculations above was made available to the audit team, and SCS confirmed the numbers by review of:

- HudsonFarm_GHG_Plan_4_3_19.pdf
- HudsonFarm_100Yr_Calcs_2_6_18.xls
- HudsonFarm_RP_ERT_HWP_2_8_18.xls
- HudsonFarm_Start_RP_CO2_2_4_18.xls
- HudsonFarm_TimberPrices_12_4_18.xls
- HudsonFarm_START.acddb
- HudsonFarm_CC.out

SCS concludes that the GHG Project Plan sufficiently assessed the emission reductions and calculated them accurately and correctly.

4.3.4 Monitoring Plan

The monitoring parameters and the quantification approach employed by the Project Proponent in the baseline and project scenarios conform to the parameters and quantification methods required by the Methodology. SCS determined that the Project Proponent sufficiently documented and quantified each parameter. Bluesource monitored each parameter throughout the reporting period, and the resulting data was subsequently provided to the audit team.

<i>Data or Parameter Monitored</i>	A1
<i>Unit of Measurement</i>	Acres
<i>Description</i>	Area of IFM Project
<i>Data Source</i>	GIS shape file derived from GPS coordinates
<i>Measurement Methodology</i>	Strata area figures adjusted based on stocking levels and species distribution projected in modeling and verified through inventory updates
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years , following with inventory update
<i>Reporting Procedure</i>	Hand held GPS unit, GIS software
<i>QA/QC Procedure</i>	Meta data is kept current and uncorrupted
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	T
<i>Unit of Measurement</i>	Year(s)
<i>Description</i>	Number of years between monitoring ($T = t_2 - t_1$)
<i>Data Source</i>	Monitoring reports
<i>Measurement Methodology</i>	
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Annually
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	All calculations double checked for accuracy prior to submission for verification
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Diameter at breast height of tree
<i>Unit of Measurement</i>	Inches (to 1/10th of an inch)
<i>Description</i>	Tree diameter measure 4.5 feet above ground
<i>Data Source</i>	Field measurement
<i>Measurement Methodology</i>	Measured with Loggers Tape or calipers
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet

<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. Breast height marked with permanent paint on all record trees >5in in diameter
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Tree Height (H)
<i>Unit of Measurement</i>	Feet
<i>Description</i>	Height of tree
<i>Data Source</i>	Field measurements
<i>Measurement Methodology</i>	Measured with clinometer or hypsometer
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All heights will be double checked for reasonableness prior to submission for verification
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Decay class
<i>Unit of Measurement</i>	
<i>Description</i>	Qualitative degree of missing biomass
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Qualitative assessment of dead tree into 1 of 4 decay classes based on class descriptions
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All decay classes will be double checked for reasonableness prior to submission for verification
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Tree Live or Dead Status
<i>Unit of Measurement</i>	Tree life status
<i>Description</i>	Live or dead
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Measured per the HF_Carbon Plot_Methodology_5_23_18.pdf
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet

<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All tree statuses will be double checked for reasonableness prior to submission for verification
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Defect
<i>Unit of Measurement</i>	Percent (%)
<i>Description</i>	Qualitative percent of missing biomass
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Qualitative assessment of tree assessed by thirds for the % missing biomass from each third. Post-inventory weighting conducted for each third of tree (Bottom 65%, Middle 25%, Top 10%)
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All tree defects will be double checked for reasonableness prior to submission for verification.
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Tree Species Composition
<i>Unit of Measurement</i>	Percent (%)
<i>Description</i>	Spp composition as a percentage of basal area.
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Derived from basal area calculations from inventory data.
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	Species identification is confirmed at verification.
<i>Purpose of Data</i>	Calculation of project emissions
<i>Calculation Method</i>	Basal Area = $0.005454 * DBH^2$
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Harvested Wood Products
<i>Unit of Measurement</i>	Metric tons CO ₂
<i>Description</i>	Carbon remaining in stores wood products 40 years after harvest for the project in year t.
<i>Data Source</i>	Harvest slips and reports produced by Hudson Farm Club.

<i>Measurement Methodology</i>	Wood volumes harvested will be monitored using the whichever recordation system is appropriate for the harvest (lump sum v. pay as cut).
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Annual data summed for the monitoring period, applied as average annual for the monitoring period
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	Harvest volumes cut and delivered to the mill will be either (1) weighed at the mill on scales tested annually by the state of New Jersey (or neighboring state) and converted to wood volume in an appropriate software, or (2) directly scaled to volume by log scalers certified by the state of New Jersey (or neighboring state).
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Forest Carbon
<i>Unit of Measurement</i>	Metric tons of CO ₂
<i>Description</i>	Carbon stores in above and below ground live trees at the beginning of the year t.
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Consistent with HF_Carbon Plot_Methodology_5_23_18.pdf
<i>Data Uncertainty</i>	To be calculated as the mean +/- 90% confidence interval
<i>Monitoring Frequency</i>	Every 5 years or less, or at request for ERT issuance.
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	Consistent with HF_Carbon Plot_Methodology_5_23_18.pdf. The inventory will use a random sample design and re-measure the same permanent plots established in 2018, which targeted a precision level of +/- 10% of the mean live tree biomass with 90% confidence.
<i>Notes</i>	

4.3.5 Verification Body Data checks

The audit team assessed the Project Proponent's emission reduction calculation inputs and procedures to convert the raw inventory data into emission reduction estimates. This review included a detailed look at the Project's data aggregation and processing procedures, recordkeeping and data storage, and the quality control and assurance procedures. Additionally, the audit team conducted in person interviews with relevant personnel involved in these activities.

4.3.6 Parameters Monitored

SCS devoted a portion of the verification assessment to the review of the manner and propriety by which Bluesource quantified their net GHG reductions and removals. This assessment included a review of the baseline determination, review of project assumptions, raw data inputs and accuracy of calculations. The formulas and raw data inputs used to determine emission reduction calculations as described in the methodology and the calculation spreadsheets were first reviewed for compliance. The main parameters were verified via independent re-quantification and are listed in sections 4.3.1 and 4.3.3 of this report. In some cases, a random sample was selected as all of the data could not be examined during verification services.

Emission Reductions

The audit team verified that the Project Proponent used the appropriate emissions factors and GWP's to calculate total emission reductions, which is adherent to the ACR Methodology. The team recalculated the final emission reductions and confirmed that they are without material discrepancy.

The ERT's associated with the first reporting period are reported in the ERT workbook and are verified by the validation/verification team are as follows:

- Total: 39,438 tCO₂e (Emissions reductions at the end of the current reporting period including deductions for uncertainty, risk, and leakage)
- 18% buffer contribution
- 40% Leakage deduction

Variances or Deviations

For this reporting period, there were no variances or deviations

Uncertainty

The baseline uncertainty of 6.44% was verified within "ACR_BS_HF_Uncertainty_V1-0_032719", HudsonFarm_RP_ERT_HWP_2_8_18", and "HudsonFarm_Start_RP_CO2_2_4_18" – "Stats_StartDate" tab via independent requantification (see table below).

SCS Recalculation						
Pool	No. of Plots	Average mtCO2e/ac	Std. Dev.	Std. Error	Acres	Total
Live	137	167.63	78.38709569	6.697061547	3,174.04	532067.3315
Dead	137	3.11	7.341895389	0.627260455	3,174.04	9867.017652
Inventory Date Inventory Confidence Calcs						
Pool	Total CO2 (Cp)	n	StdError	Bound	90% CI (ep)	
Live (CP,Tree,t)	532067.3315	137	21256.74123	34967.33933	6.57%	
Dead (CP,Dead,t)	9867.017652	137	1990.949774	3275.112378	33.19%	
$\bar{C}_{BSL, HWP}$	3455					
UNC _{BSL}	6.44%					
UNC _{BSL}	6.44%	<- client value				
ions	0.00%	<- difference				

The Project Uncertainty and Total Uncertainty are reported in “HudsonFarm_Start_RP_CO2_2_4_18” – “Stats_StartDate” tab was confirmed to be consistent with the ACR methodology.

Materiality

$$\% \text{ Error} = \frac{(\text{Project Emission Reduction Assertion} - \text{Verifier Emission Reduction Recalculation})}{\text{Verifier Emission Reduction Recalculation}} * 100$$

$$\% \text{ Error} = \frac{(39,438 - 39,427)}{39,427} * 100 = \frac{11}{39,427} * 100 = 0.03\%$$

5 Validation Conclusion

SCS confirms that the GHG Plan for the Bluesource - Hudson Farm Improved Forest Management Project conforms to the validation criteria, as set out in the ACR Standard, Version 5.1 (July 2018), Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3 (April 2018), and the criteria referenced in Section 2.2 of this report. No qualifications or limitations exist with respect to the validation opinion reached by the audit team.

6 Verification Conclusion

The audit team affirms with a reasonable level of assurance that the Bluesource - Hudson Farm Improved Forest Management Project has been designed and, for the duration of the reporting period 30 June 2017 to 29 June 2018, implemented in accordance with the verification criteria, as set out in the documents referenced in Section 2.2 above.

On the basis of the information made available SCS and the analyses completed during the verification, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the emission reductions represented by the project proponent during the monitoring period of 30 June 2017 to 29 June 2018 are free from material misstatement and in conformance with the assessment criteria.

The following provides a summary of the verification results:

Reporting Period	Baseline Emissions tCO ₂ e	Project Emissions tCO ₂ e	Net GHG Emission Reductions tCO ₂ e
30 June 2017 to 29 June 2018	-78,928	1,231	39,438

Note: final numbers are rounded for simplicity.

Buffer Contribution = 8,658

Leakage = 26,293

Lead Verifier's Approval	 James Cwiklik, 2 April 2019
Technical Reviewer's Approval	 Francis Eaton, 2 April 2019

Appendix A: SCS Certification Mark

Congratulations on receiving a positive verification for the Bluesource - Hudson Farm Improved Forest Management Project. Your project is now eligible to use the SCS Kingfisher Certification Mark B for Carbon Offset Project Verification, as represented on the cover page of this verification report. The SCS Kingfisher Certification Mark increases the recognition of your achievements with your verification carbon offset project.

Please refer to the *SCS Kingfisher Certification Mark Labeling and Language Guide: Mark B* provided to you by the GHG Verification Program staff for more information about your Mark and usage. Should you have any additional questions regarding your Mark, use, messaging, or other marketing opportunities, please contact the GHG Verification Team or SCS Marketing Staff at NRmarcom@scsglobalservices.com.

Appendix B: List of Documents Reviewed During Audit Proceedings

GHG Plan & Monitoring Report

- HudsonFarm_GHG_Plan_4_3_19.pdf
- HudsonFarm_RP1_MonitoringReport_3_26_19.pdf

GIS Information

- HudsonFarm_Boundary_7_20_18.shp
- HF_Plots_7_20_18.shp
- soildb_NJ_2003.mdb

FVS files (growth and yield modelling)

- processFVSoutput.R
- HudsonFarm_START.accdb
- HudsonFarm_CC.accdb
- HudsonFarm_CC.out
- HudsonFarm_CC.KEY
- HudsonFarm_GROW.accdb
- HudsonFarm_GROW.KEY
- HudsonFarm_IndTreeGrow.KEY
- extractSiteIndex.R
- HudsonFarm_DL.KEY

Baseline and Project Scenario quantification workbooks

- HudsonFarm_100Yr_Calcs_2_6_18.xls
- HudsonFarm_RP_ERT_HWP_2_8_18.xls
- HudsonFarm_Start_RP_CO2_2_4_18.xls
- HudsonFarm_TimberPrices_12_4_18.xls

Inventory workbooks

- HF_CarbonPlot_Methodology_5_23_18.pdf

Title document

- Deed_IATReinsurance_Block353Lot1_ByramTwp.pdf
- Deed_Summary_Doc.pdf
- Deeds_CardiaCo_ByramTwp.pdf
- Deeds_EGAnderson_ByramTwp.pdf
- Deeds_EGAnderson_Dericks_Lisand.pdf

- Deeds_IATReinsurance_AndoverTwp(Westby).pdf
- HF_Deeds_Pt1.pdf
- HF_Deeds_Pt2.pdf

Supplemental documents (Certifications, Easements, Attestations, and Management Plans)

- EG Anderson (across street)2 TF Cert 2014.pdf
- EG Anderson (across street)pg1 TF Cert 2014.pdf
- EG Anderson TF Cert 2014.pdf
- IAT Reinsurance (Hudson Farm) TF Cert 2014.pdf
- IAT Reinsurance (Westby) TF Cert 2014.pdf
- ACR AFOLU Carbon Project Reversal Risk Mitigation Agreement 2018_signed.pdf
- Annual-Project-Attestation_2018_signed.pdf
- HudsonFarm_OffsetsTitle_Attestation_6_27_2018_signed.pdf
- HudsonFarm_Regulatory_Compliance_Attestation_6_27_2018_signed.pdf
- Hudson Farms Wildlife Management Plan 2.0_draft.pdf
- FSP with addendum IAT Reinsurance Syndicate (Hudson Farm).pdf
- FSP with addendum EG Anderson Inc (Lisand).pdf
- FSP with addendum EG Anderson Inc (across street).pdf
- FSP Cardia Company.pdf
- Hudson Farm CDMA -Execution Copy 2017-06-30_Redacted.pdf
- nj_bmp_manual1995.pdf
- img-911145805-0001.pdf
- img-911150142-0001.pdf

****Please note that many of the quantification workbooks as well as the GHG plan and Monitoring Report have multiple versions, these were all examined but the final version listed here****

Appendix C: List of Findings

Please see Section 3.6 above for a description of the findings issuance process and the categories of findings issued. It should be noted that all language under “Client Response” is a verbatim transcription of responses provided to the findings by project personnel.

NCR 1 Dated 14 Sep 2018

Standard Reference: ACR Standard 5.1

Document Reference: HudsonFarm_RP1_MonitoringReport_8_3_18.pdf

Finding: The standard states in section 2B.6 Managing Data Quality - "The Project Proponent shall establish and apply quality assurance and quality control (QA/QC) procedures to manage data and information, including the assessment of uncertainty in the project and baseline scenarios. QA/QC procedures shall be outlined in the GHG Project Plan." This finding relates to the quality assurance to manage information. The American Carbon Registry Monitoring Report lists the project as: ACR Project ID# 375. Please update this document to the correct Project ID.

Project Personnel Response: The monitoring report ACR code has been updated. See HudsonFarm_RP1_MonitoringReport_9_18_18.pdf in the shared folder.

Auditor Response: Upon issuance of this finding the ACR code has been successfully updated in their monitoring report.

Bearing on Offset Material Misstatement: C

NCR 2 Dated 14 Sep 2018

Standard Reference: ACR Standard 5.1

Document Reference: HudsonFarm_GHG_Plan_08_03_18.pdf

Finding: The standard states in section 2B.6 Managing Data Quality - "The Project Proponent shall establish and apply quality assurance and quality control (QA/QC) procedures to manage data and information, including the assessment of uncertainty in the project and baseline scenarios. QA/QC procedures shall be outlined in the GHG Project Plan." This finding relates to the quality assurance to manage information. A conservation easement is referenced multiple times throughout the GHG plan but does not exist. Please update to reflect accurate conditions and certifications.

Project Personnel Response: There is no conservation easement on the property and all references to such an easement have been removed. Please see the updated GHG Plan in the shared folder: HudsonFarm_GHGPlan_9_18_18_V2

Auditor Response: Upon issuance of this finding the conservation easement references have been taken out of the GHG plan. Further review revealed that two separate conservation easements do exist in the project area and have been provided for review. However, they do not cover the entire project and are not used in the Risk Rating. An email correspondence has been provided regarding the issue. The client wasn't completely accurate in their response; however, the conservation easements should have no impact on the project activities and the finding remains closed.

Bearing on Offset Material Misstatement: C

NCR 3 Dated 14 Sep 2018**Standard Reference:** ACR Standard 5.1**Document Reference:** HudsonFarm_GHG_Plan_08_03_18.pdf

Finding: The standard states in section 2B.6 Managing Data Quality - "The Project Proponent shall establish and apply quality assurance and quality control (QA/QC) procedures to manage data and information, including the assessment of uncertainty in the project and baseline scenarios. QA/QC procedures shall be outlined in the GHG Project Plan." This finding relates to the quality assurance to manage information. Appendix A is referenced in the GHG plan for ownership and Land Title information as well as for a conservation easement (see finding 2). This document or section is not available or cannot be found. Please provide the document or edit the GHG plan to accurately reflect where information can be found.

Project Personnel Response: Appendix A refers to an attachment that will be uploaded on the registry after successful verification containing the deeds and spatial files for the project. For your reference I have added Appendix A to the shared folder.

Auditor Response: Upon issuance of this finding, the explanation of what Appendix A refers to is clearly stated. It is not available for the verifier as it is an attachment for after successful verification.

Bearing on Offset Material Misstatement: C**NCR 4 Dated 14 Sep 2018****Standard Reference:** ACR Standard 5.1**Document Reference:** HudsonFarm_GHG_Plan_08_03_18.pdf

Finding: The standard states "Adherence to the ACR Standard and associated methodologies will ensure that project-based offsets represent emissions reductions and removals that are real, measurable, permanent, in excess of regulatory requirements and common practice, additional to business-as-usual, net of leakage, verified by a competent independent third party, and used only once." During review, it was found that the leakage section of the GHG plan (E3) states that Hudson Farm Club is FSC-certified. During the site visit it was determined that the property is not FSC-certified. Please update this section and any others to including quantification calculations related to leakage.

Project Personnel Response: The properties with active harvesting are Tree Farm certified. The GHG Plan has been updated accordingly.

Auditor Response: Upon issuance of this finding, there is still references to the Forest Stewardship Council certification even though Hudson Farm is not certified under this system. Please update to accurate certification.

Project Personnel Response 2: The GHG Plan has been updated accordingly.

Auditor Response 2: Upon issuance of this finding the FSC references have been taken out of the GHG plan.

Bearing on Offset Material Misstatement: C

NIR 5 Dated 14 Sep 2018**Standard Reference:** ACR Standard 5.1**Document Reference:** HudsonFarm_GHG_Plan_08_03_18.pdf

Finding: Chapter 2 Section A states "Select the GHG sources, GHG sinks, GHG reservoirs, data and methodologies appropriate to the needs of the intended user (ISO 14064-2:2006, clause 5.6). The GHG plan states that "no burning of any kind is expected to take place in the project area", however methane (CH₄) is listed as "included" in their burning of biomass table in section B4 of the GHG plan. Please clarify if burning of biomass is conducted as part of the project activities. Please clarify if methane is included or excluded.

Project Personnel Response: There is no burning of biomass in the project area, therefore CH₄ is excluded from the GHG sources. The GHG Plan has been updated accordingly.

Auditor Response: Upon issuance of this finding the reference to Methane being included has been taken out of the sources and sinks, and is listed as excluded.

Bearing on Offset Material Misstatement: C

NCR 6 Dated 14 Sep 2018

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non Federal US Forestlands V 1.3

Document Reference: HudsonFarm_RP_ERT_HWP_8_13_18.xls

HudsonFarm_Start_RP_CO2_8_13_18.xls

Finding: Equation 10 of the ACR methodology defines how the percentage uncertainty in the combined carbon stocks in the baseline (UNCBSL) is estimated. During the review of the uncertainty calculation used within workbook “HudsonFarm_RP_ERT_HWP_8_13_18.xls” and “HudsonFarm_Start_RP_CO2_8_13_18.xls”, a non-conformity was identified in the estimation of UNCBSL where the client omitted the twenty-year baseline average value of annual carbon remaining stored in wood products for 100 years after harvest ($\bar{C}_{BSL,HWP}$). As the quantification of UNCBSL is defined as the square root of the summed errors in each of the measurement pools, with $\bar{C}_{BSL,HWP}$ as one of those pools, it must be included. Please update the quantification of UNCBSL within the above workbooks to comply with the ACR methodology.

Equation 18 of the ACR methodology defines how the percentage uncertainty in the combined carbon stocks in the project year t ($UNCP,t$) is estimated. During the review of the uncertainty calculation used within workbook “HudsonFarm_RP_ERT_HWP_8_13_18.xls”, the estimation of $UNCP,t$ was not complete. As the quantification of $UNCP,t$ is defined as the square root of the summed errors in each of the measurement pools, with $\bar{C}_{BSL,HWP}$, $CP_{Tree,t}$, and $CP_{Dead,t}$ as those pools, it must be included. Please update the workbook “HudsonFarm_RP_ERT_HWP_8_13_18.xls” to include the quantification of $UNCP,t$ to comply with the ACR methodology.

Equation 19 of the ACR methodology defines how the total project uncertainty in year t ($UNCt$) is estimated. During the review of the uncertainty calculation used within workbook “HudsonFarm_RP_ERT_HWP_8_13_18.xls”, a non-conformity was identified in the estimation of $UNCt$ where the client applied the UNCBSL to the change in the project carbon stocks ($\Delta CP,t$) during quantification. Whereas, equation 19 states that $UNCP,t$ needs to be applied to the $\Delta CP,t$ during estimation. Please update the workbook “HudsonFarm_RP_ERT_HWP_8_13_18.xls” to correctly quantify $UNCt$ to comply with the ACR methodology.

Bearing on Offset Material Misstatement: C

Project Personnel Response: EQUATION 10

The uncertainty equations in HudsonFarm_RP_ERT_HWP_09_19_18.xlsx have been corrected so that they conform with Equations 10, 18, and 19 of the ACR protocol. Uncertainty in combined baseline CO₂e stocks (Equation 10) is calculated in row 25 of the "ACR_IFM_ERT_Calcs" tab. The baseline uncertainty calculation (UNCBSL) now includes all required pools: live CO₂e in year 1 (CBSL,TREE,1), dead CO₂e in year 1 (CBSL,DEAD,1), 20-yr average CO₂e in wood products (CBSL,HWP), and 20-yr average baseline GHG emissions (GHGBSL). The uncertainties in live and dead CO₂e (eBSL,TREE and eBSL,DEAD), which are shown in rows 2 and 3, are calculated in the "Stats_StartDate" tab of HudsonFarm_Start_RP_CO₂_09_19_18.xlsx.

EQUATION 18

Uncertainty in combined project CO₂e stocks (Equation 18) is calculated in row 26 of the "ACR_IFM_ERT_Calcs" tab. The project uncertainty calculation (UNCP,t) now includes all required pools: live CO₂e in year t (CP,TREE,t), dead CO₂e in year t (CP,DEAD,t), CO₂e in wood products in year t (CP,HWP,t), and project GHG emissions in year t (GHGP,t). The protocol specifies that uncertainties in live and dead CO₂e (eP,TREE and eP,DEAD) should be estimated from "the last remeasurement of the inventory prior to year t." As the project is in the first reporting period, the most recent inventory is the start date inventory (year 1). Therefore, eP,TREE and eP,DEAD equal eBSL,TREE and eBSL,DEAD, which are shown in rows 2 and 3 of the "ACR_IFM_ERT_Calcs" tab in HudsonFarm_RP_ERT_HWP_09_19_18.xlsx .

EQUATION 19

Total project uncertainty (Equation 19) is calculated in row 27 of the "ACR_IFM_ERT_Calcs" tab. The total uncertainty calculation (UNCT) now applies the baseline uncertainty (UNCBSL) to the change in baseline CO₂e (Δ CBSL,t) and the project uncertainty (UNCP,t) to the change in project CO₂e (Δ CP,t).

Auditor Response: Upon issuance of this finding, the uncertainty equations have been updated.

Bearing on Offset Material Misstatement: M

NIR 7 Dated 12 Nov 2018**Standard Reference:** ACR Standard 5.1

The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non Federal US Forestlands V 1.3

Document Reference: HudsonFarm_GHG_Plan_9_24_18.pdf

Finding: The ACR Standard 5.1 states "FINANCIAL BARRIERS include high costs, limited access to capital, or an internal rate of return in the absence of carbon revenues that is lower than the Project Proponent's established and documentable minimum acceptable rate. Financial barriers can also include high risks such as unproven technologies or business models, poor credit rating of project partners, and project failure risk. If electing the financial implementation barrier test, Project Proponents shall include solid quantitative evidence such as net present value and internal rate of return calculations."

Currently the GHG plan states: "Carbon funding is reasonably expected to incentivize the project's implementation. The implementation of the carbon project represents an opportunity cost to lost revenue associated with the potential timber harvesting that could legally and feasibly occur on the property in the lifetime of the carbon project. A financial feasibility assessment is provided separately for verification demonstrating the financial barrier carbon funding overcomes in project implementation." The verification body does not have the feasibility assessment. Please provide evidence that the project passes the financial implementation barrier test. Also, please indicate where the financial feasibility assessment is located.

Project Personnel Response: All calculations of the baseline (i.e., harvest regime in absence of carbon project) are found in HudsonFarm_100Yr_Calcs_12_4_18.xlsx. We determine the timber harvest that would maximize the net present value of timber revenues over a 100-yr period. Regional timber prices ("StumpagePrices"), expected revenues ("Financials"), and maximization of net present value ("Baseline") are all found in this worksheet.

Auditor Response: Upon issuance of the finding, SCS performed individual checks on the values/data reported in the HudsonFarm_100Yr_Calcs_12_4_18.xlsx file. Timber prices have been found accurate for the area. The variable cost of 18% matches the GHG plan as well. This finding has been closed.

Bearing on Offset Material Misstatement: C**NCR 8 Dated 12 Nov 2018****Standard Reference:** ACR Standard 5.1**Document Reference:** HudsonFarm_GHG_Plan_9_24_18.pdf

HudsonFarm_RP1_MonitoringReport_9_24_18.pdf

Finding: The standard states in section 2B.6 Managing Data Quality - "The Project Proponent shall establish and apply quality assurance and quality control (QA/QC) procedures to manage data and information, including the assessment of uncertainty in the project and baseline scenarios. QA/QC procedures shall be outlined in the GHG Project Plan." This finding relates to the quality assurance to manage information. The American Carbon Registry Monitoring Report Section II list the relevant ACR Sector Standard and Version as "ACR Standard Version 5.1" while the GHG Plan lists this as version 5.1. Please update both documents for consistency to the latest version.

Project Personnel Response: The monitoring report and GHG Plan have been updated accordingly.

Auditor Response: Upon issuance of this finding, all references to the old standard have been removed.

Bearing on Offset Material Misstatement: C

NCR 9 Dated 12 Nov 2018

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non Federal US Forestlands V 1.3

Document Reference: HudsonFarm_GHG_Plan_9_24_18.pdf

HudsonFarm_RP_ERT_HWP_8_13_18.xls

Finding: Section B5. Permanence states " Projects must have effective risk mitigation measures in place to compensate fully for any loss of sequestered carbon whether this occurs through an unforeseen natural disturbance or through a Project Proponent or landowners' choice to discontinue forest carbon project activities. Such mitigation measures can include contributions to the buffer pool, insurance, or other risk mitigation measures approved by ACR." Referring to the calculation of ERTs, the buffer percent of 18% as referenced in the GHG plan is only 15% in the workbooks. Please update all workbooks to accurately reflect the buffer percentage calculated in the GHG plan

Project Personnel Response: All workbooks now have 18% buffer as referenced in the GHG plan.

Auditor Response: Upon issuance of this finding the buffer percentage was updated to 18%.

Bearing on Offset Material Misstatement: M/C

NCR 10 Dated 12 Nov 2018

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non Federal US Forestlands V 1.3

Document Reference: HudsonFarm_RP_ERT_HWP_091918.xls

Finding: Equation 20 of the ACR methodology defines how to estimate " additional annual net greenhouse gas emission reductions and Emission Reduction Tons (ERTs) issued for a time period, t" and includes the applicable leakage and buffer reductions. Upon review of the ERT calculations presented in worksheet "ACR_IFM_ERT_Caccls.xls", row 20, 'Emissions reductions at t' which includes buffer...an error was identified in the cell reference for the Project's leakage and buffer values resulting in an incorrect estimate of ERTs at time t. The cell references will need to be updated to correctly apply the leakage and buffer reductions to comply with the requirements of the methodology.

Project Personnel Response: The cell references have been corrected to refer to the leakage (D4) and the buffer (D5).

Auditor Response: Upon issuance of this finding, the cell references were properly updated.

Bearing on Offset Material Misstatement: M

NCR 11 Dated 12 Nov 2018**Standard Reference:** ACR Standard 5.1**Document Reference:** {FVS KEY AND OUT FILES}; {FVS output database(s)}

Finding: The standard states in section 2B.6 Managing Data Quality - "The Project Proponent shall establish and apply quality assurance and quality control (QA/QC) procedures to manage data and information, including the assessment of uncertainty in the project and baseline scenarios. QA/QC procedures shall be outlined in the GHG Project Plan." This finding relates to the quality assurance to manage information. During the review of the FVS simulations, the audit team identified multiple errors caused by spacing problems within the input script. The result was that certain regeneration and harvest scenarios did not occur as intended causing the simulations to be inconsistent with the GHG plan and stated management prescriptions. Please update the FVS simulations to correct for ALL errors so that the simulations are consistent with the documented prescriptions in the GHG plan.

Keywords affected: THINBBA, BFVolume, Natural

Project Personnel Response: The Params format for specifying FVS keywords is now used to avoid the spacing issues that arose previously. All .out files now show that the FVS commands were executed without errors for all FVS runs.

Auditor Response: Upon issuance of this finding, this error has been corrected. The keywords avoid the spacing issue.

Bearing on Offset Material Misstatement: M**NCR 12 Dated 12 Nov 2018****Standard Reference:** ACR Standard 5.1**Document Reference:** {FVS output database(s)}; HudsonFarm_100Yr_Calcs_08_13_18.xls

Finding: The standard states in section 2B.6 Managing Data Quality - "The Project Proponent shall establish and apply quality assurance and quality control (QA/QC) procedures to manage data and information, including the assessment of uncertainty in the project and baseline scenarios. QA/QC procedures shall be outlined in the GHG Project Plan." This finding relates to the quality assurance to manage information. During the review of plot 99 in the baseline scenario, the audit team identified an inconsistency between the carbon values output from FVS for the years 2057, 2062, and 2067 with those reported in the calculation workbook, "HudsonFarm_100Yr_Calcs_08_13_18.xls". It appears that the script used to populate table "FVS_Pivot" in the "HudsonFarm_100Yr_Calcs_08_13_18.xls" workbook allocated values from the year 2062 to the year 2057, and values from the year 2067 to 2062. Please update the script to correctly allocate carbon to plot/RX and year.

Project Personnel Response: The script has been corrected to fix this error. Carbon is now allocated correctly across years for all plot-RX combinations.

Auditor Response: Upon issuance of this finding, the script has been updated appropriately.

Bearing on Offset Material Misstatement: M

NIR 13 Dated 16 Nov 2018

Standard Reference: ACR Tool For Risk Analysis and Buffer Determination

Document Reference: HudsonFarm_GHG_Plan_9_24_18.pdf

Finding: The ACR Tool for Risk Analysis and Buffer Determination states " Evidence may include written communication from State, Federal or Local independent experts in the applicable field, peer reviewed literature, or other scientific documentation or reports. This evidence must be current at the time of verification." The selection of a 4% Default Value for Diseases and Pests (Category F) does not provide evidence. Please provide verifiable evidence that 4% is accurate and correct.

Project Personnel Response: Steve Kalleser, a local consulting forester who works all throughout northern NJ, actively manages the Hudson Farm forests and works closely with local conservation and state agencies (including Audubon, USFS, and NJ Forest Service), has confirmed that there are no epidemic disease or pest outbreaks in, on, or around Hudson Farm. An email correspondence has been provided in the shared verification folder.

Auditor Response: Upon issuance of this finding, the email message was checked and confirmed. However, upon individual data checks (maps and sources provided to client) it has been discovered that gypsy moth is present in the 30 mile radius around the project area as well as within the project area itself. Due to this information, please update the risk rating for pest and disease to accurately reflect the proximity to nearby infestations and/or epidemic disease.

Project Personnel Response 2: After discussions with Quincey Oliver from ACR and the verifier, James Cwiklik, all parties have agreed that the USFS Insect and Disease survey have insufficient information to be a reliable source of data. The attestation from the forest manager, Steve Kalleser, of no epidemic level pests or diseases is sufficient for use of the default Pest and Disease Risk Tool Rating.

Auditor Response 2: The discussions referenced by Bluesource resulted in a closing of the finding. After reviewing all information obtained during the site visit and the data found post site visit, it was determined that no major disease or pest event was within the project boundary or surrounding area.

Bearing on Offset Material Misstatement: NA

NIR 14 Dated 4 Jan 2019**Standard Reference:** ACR Standard 5.1**Document Reference:** HudsonFarm_100Yr_Calcs_12_4_18.xls

Finding: The ACR Forest Carbon Standard 5.1 states "FINANCIAL BARRIERS include high costs, limited access to capital, or an internal rate of return in the absence of carbon revenues that is lower than the Project Proponent's established and documentable minimum acceptable rate. Financial barriers can also include high risks such as unproven technologies or business models, poor credit rating of project partners, and project failure risk. If electing the financial implementation barrier test, Project Proponents shall include solid quantitative evidence such as net present value and internal rate of return calculations."

This information request pertains to the "Financials" worksheet in the 100yr calcs workbook. The Annual Fixed Costs (Row 11) are all set as \$0. Please provide an explanation as to why this is the case and how the project functions over time without any fixed costs.

Project Personnel Response: Fixed costs refer to costs that the landowner incurs regardless of the carbon project (occurring in both the no-project and with-project scenarios). Thus, the output of the financial project scenario comparison model is not affected by these costs, no matter what they are. This is set to "0" in our workbook to indicate they are not included in the model.

Auditor Response: Upon issuance of the finding, Bluesource has responded with an explanation as to the zero fixed costs reported in the financial barriers. The model is not affected by a lack of fixed costs and therefore is closed.

Bearing on Offset Material Misstatement: NA**NIR 15 Dated 25 Jan 2019****Standard Reference:** N/A**Document Reference:** HudsonFarm_Start_RP_CO2_8_13_18.xls

HudsonFarm_Start_RP_CO2_09_19_18.xls

HudsonFarm_Start_RP_CO2_12_4_18.xls

Finding: During the review of carbon calculations it was found that a number of plots were updated from the original Start RP file. Specifically the Start_TreeList tab had 9 plots that doubled in the TPA Degrown from the original file provided to SCS. Please explain and justify this change as it accounts for a sizeable difference in carbon values.

Project Personnel Response: The plots referenced in the NIR were walkthrough plots and were incorrectly double counted. The calculations have been updated to fix this error and all subsequent documents have been updated to reflect the changes.

Auditor Response: Bluesource has updated the plots in question so they are no longer doubled. This finding is considered closed.

Bearing on Offset Material Misstatement: M

NCR 16 Dated 31 Jan 2019

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non Federal US Forestlands V 1.3

Document Reference: HudsonFarm_100Yr_Calcs_12_4_18.xls
HudsonFarm_GHG_Plan_1_7_19.pdf

Finding: The GHG plan states "We computed NPV using a 6% discount rate, the rate specified for private, non-industrial in the ACR protocol." While Table 1 in the standard clearly states that an ownership of "private non-industrial" has a 5% discount rate. Please update the NPV value to be in conformance with the standard.

Project Personnel Response: We selected Hudson Farm as a Private Industrial owner for several reasons: the ownership is corporate (and profit-seeking/maximizing), the size of the property is comparable to similar industrial owners in the region, and the ownership seems distinct from owners that are certainly categorized as Non-Industrial such as a family landowner. The GHG Plan has been corrected specifying the correct description of the ownership for the 6% discount rate, but the model does not need to be updated as it currently uses 6%.

Auditor Response: The GHG plan has been updated upon issuance of the finding. The discount rate of 6% is acceptable considering the project's size, location, and ownership. This finding is considered closed.

Bearing on Offset Material Misstatement: M/C

NCR 17 Dated 8 Feb 2019

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non Federal US Forestlands V 1.3

Document Reference: HudsonFarm_RP_ERT_HWP_2_6_18

Finding: The methodology states: "The uncertainty in the baseline scenario should be defined as the square root of the summed errors in each of the measurement pools. For modeled results use the confidence interval of the input inventory data. For wood products and logging slash burning emissions use the confidence interval of the inventory data. The errors in each pool shall be weighted by the size of the pool so that projects may reasonably target a lower precision level in pools that only form a small proportion of the total stock." Currently, the Uncertainty in the baseline does not incorporate the twenty-year average value of annual carbon remining in stored wood products 100 years after harvest. This is not in conformance with the methodology, please update accordingly to be in conformance.

Project Personnel Response: All documents and equations have been updated to incorporate the correct baseline uncertainty calculations.

Auditor Response: Upon issuance of this finding, the uncertainty equations have been changed. Now the correct values are incorporated into the equation. This finding is now closed.

Bearing on Offset Material Misstatement: M